

REMARKS

Claims 1-10 and 18 are pending in this Application. By this Amendment, claim 1 has been amended to recite that R⁵ and R⁸ of the moiety of formula (II) are hydrogen. Entry and consideration of this Amendment is earnestly requested in that it does not include new matter.

Claim Rejections

Double Patenting Rejections

Claims 1-10 have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of copending Application Number 10/480,672, and claims 1-6 of copending Application Number 10/536,858. In a telephone message left with Applicants' attorney on March 11, 2008, the Examiner indicated that the citation of Application No. 10/480,672 was a typographical error, and that the correct citation was Application No. 10/480,762. Applicants respectfully request that the Examiner confirm this in the next Office Action.

In response to the provisional rejections of claims 1-10 on the ground of nonstatutory obviousness-type double patenting, Applicants include with this Response, Terminal Disclaimers for Application Numbers 10/536,858 and 10/480,762. Applicants note that Application 10/480,762 has been allowed, and will grant as U.S. Patent No. 7,459,511 on December 2, 2008. Reconsideration and withdrawal of the Rejection is respectfully requested.

Rejections Under 35 U.S.C. § 103

A. Response to rejection of claims 1-10 and 18 under 35 U.S.C. 103(a) as being unpatentable over Vathauer in view of the '795 document.

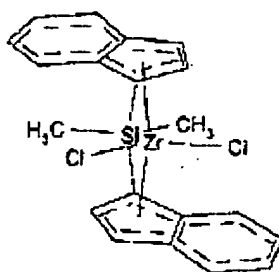
In response to the rejection of claims 1-10 and 18 under 35 U.S.C. 103(a) as being unpatentable over Macromolecules 2000, 33, 1955-1959 of Vathauer et al. ("Vathauer") in view of GB 1,460,795 ("795" document), Applicants respectfully submit that a *prima facie* case of Obviousness has not been made out, and traverse the Rejection.

With respect to a rejection under 103(a), the U.S. Supreme Court in *Graham v. John Deere Co.*, 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under §103 by (1) determining the scope and content of the prior art; (2) ascertaining the differences between

the prior art and the claims at issue; (3) resolving the level of ordinary skill in the art; and, (4) inquiring as to any objective evidence of non-obviousness. Accordingly, for the Examiner to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. See MPEP §2143. Finally, all claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. (BNA) 580 (C.C.P.A. 1974).

First, as previously acknowledged by the Examiner, Vathauer does not expressly teach the copolymerization of 1-butene. The Examiner has also acknowledged that Vathauer's formula (I) does not meet the metallocene complex (II) limitations of the current claims. However, the Examiner nevertheless maintains that Vathauer's formula (3) is still encompassed by the racemic metallocenes recited in the current process claims. Applicants respectfully disagree.

Vathauer's formula (3) is $[\text{Me}_2\text{Si}(\text{Ind})_2\text{ZrCl}_2]$, dimethylsilylbis-(indenyl)zirconium dichloride:

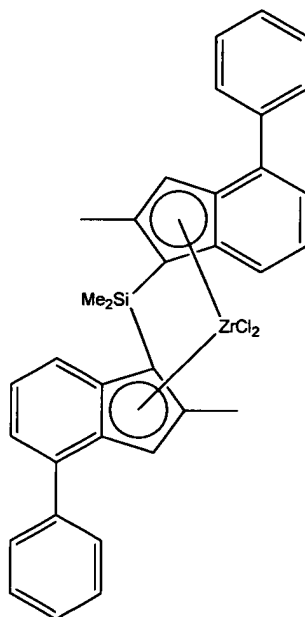


Clearly, position 2 of the indenyl ring is not substituted. In contrast, the current process claims recite that for the described catalysts:

R^1 and R^3 , equal to or different from each other, are linear or branched, saturated or unsaturated $\text{C}_1\text{-C}_{20}$ alkyl, $\text{C}_3\text{-C}_{20}$ cycloalkyl, $\text{C}_6\text{-C}_{20}$ aryl, $\text{C}_7\text{-C}_{20}$ alkylaryl or $\text{C}_7\text{-C}_{20}$ arylalkyl radicals.

Therefore, Vathauer's compound of formula (3) is not encompassed in the currently recited claims.

With respect to Vathauer's compound of formula (2), this compound is dimethylsilylbis-(2-methyl-4-phenylindenyl)zirconium dichloride, $[\text{Me}_2\text{Si}(2\text{-Me-4-PhInd})_2\text{ZrCl}_2]$:



In contrast, Applicants respectfully submit that the current claims recite that R⁵ and R⁸ of the moiety of formula (II) are hydrogen. Therefore, Vathauer's compound (2) is not encompassed by the current claims.

However, even if Vathauer's compound (2) was encompassed by the catalysts in the current process claims, a *prima facie* case of Obviousness has not been made out. As discussed in the previous Response, Vathauer teaches away from the current claims since it discloses that the *meso* form of the catalyst is more active:

The *meso*-forms of 1 and 2 are much more active than the corresponding *rac*-isomers (page 1956, left side, lines 7-9 below Table 2).

In fact, of the six catalysts tested, the *rac* form of catalyst 2 is only the fourth most active. (Table 1, page 1956). Finally, the *meso*-isomers of catalysts 1 and 2 are also more stable (page 1957, right side, lines 15-16). Vathauer itself describes the unpredictability of the use of the *rac* form:

The most striking result is that if polymerizing α -olefins with the catalysts 1 and 2, the *meso*-compounds show a higher polymerization activity than the *rac*-forms of the metallocenes. This is remarkable because in the polymerization of propene the reaction rate of the *rac*-compound is higher than that of its *meso*-enantiomer (page 1955, right side, lines 14-20 below Abstract).

In response, the Examiner has argued that:

[w]hen the isotactic butene-1 polymers with good mechanical strength are desired, a skill artisan would be motivated to use the less active metallocene *rac*-isomers of Vathauer. (Office Action, page 3)

However, the Examiner has not addressed why, even if one skilled in the art were to use Vathauer's metallocene *rac*-isomers, they would be motivated to begin with the *rac*-form of Vathauer's compound (2), since the *rac*-form of compound (3) is more active for the polymerization of butene (480 vs. 350 kg of PB/(mol of Zr h)).

The Examiner has argued that the '795 Document teaches a solution to the low transparency and poor resistance to tear propagation of highly isotactic polybutene-1, by introducing comonomers to the isotactic butene-1 polymer chain. However, this conclusion is inappropriate since the '795 document relates to polymer material made from multi-site (TiCl_3) catalysts, in contrast to materials produced from single site metallocene catalysts, as recited in the present claims.

Therefore, the references, whether taken alone or in combination, do not teach, suggest or disclose the current claims. No reason has been identified, either in the references or in the Office Action, why one of skill in the art would have combined the disparate elements of the cited references in the manner claimed. See U.S. PTO Memorandum dated May 3, 2007, re: Supreme Court Decision on *KSR Int'l. Co. v. Teleflex, Inc.*, stating that "in formulating a rejection under 35 U.S.C. § 103(a) based upon a combination of prior art elements, *it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed.*"). And as noted by the Supreme Court in *KSR*,

“[t]o facilitate review, this analysis should be made explicit.” (U.S. PTO Memorandum citing KSR, citation omitted). Certainly, the modifications that would be required to arrive at the current claims based on the cited references do not represent the finite (and small in the context of the art) number of options easily traversed to show obviousness. *Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc.*, 520 F.3d 1358, 1364 (Fed. Cir. 2008)

For the reasons stated above, Applicants respectfully request reconsideration and withdrawal of the Rejection by Examiner. Should the Examiner have questions or comments regarding this application or this Amendment, Applicant's attorney would welcome the opportunity to discuss the case with the Examiner.

The Commissioner is hereby authorized to charge U.S. PTO Deposit Account 08-2336 in the amount of any fee required for consideration of this Response.


This is intended to be a complete response to the Office Action mailed June 13, 2008.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with sufficient postage thereon with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on November 1, 2008.


December 1, 2008
Date of Signature

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